

CONFORMED COPY

LOAN NUMBER 3694 KO

(Environmental Technology Development Project)

between

REPUBLIC OF KOREA

and

INTERNATIONAL BANK FOR RECONSTRUCTION
AND DEVELOPMENT

Dated February 16, 1994

LOAN NUMBER 3694 KO

LOAN AGREEMENT

AGREEMENT, dated February 16, 1994, between REPUBLIC OF KOREA (the Borrower) and INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT (the Bank).

WHEREAS the Borrower, having satisfied itself as to the feasibility and priority of the Project described in Schedule 2 to this Agreement, has requested the Bank to assist in the financing of the Project;

WHEREAS the Bank has agreed, on the basis, inter alia, of the foregoing, to extend the Loan to the Borrower upon the terms and conditions set forth in this Agreement;

NOW THEREFORE the parties hereto hereby agree as follows:

ARTICLE I

General Conditions; Definitions

Section 1.01. The "General Conditions Applicable to Loan and Guarantee Agreements" of the Bank, dated January 1, 1985, with the modifications set forth below (the General Conditions) constitute an integral part of this Agreement:

- (a) The last sentence of Section 3.02 is deleted.
- (b) In Section 6.02, sub-paragraph (k) is re-lettered as sub-paragraph (l) and a new sub-paragraph (k) is added to read:
 - "(k) An extraordinary situation shall have arisen under which any further withdrawals under the Loan would be inconsistent with the provisions of Article III, Section 3 of the Bank's Articles of Agreement."

Section 1.02. Unless the context otherwise requires, the several terms defined in the General Conditions have the respective meanings therein set forth and the following additional terms have the following meanings:

- (a) "MOEN" means the Borrower's Ministry of Environment or any successor thereto;
- (b) "Research Participating Institutions" means collectively KAIST, KAITECH, KRISS, KORDI, SERI, KWAIST, KIMM AND GERI, and "Research Participating Institution" means any one of them;
- (c) "KAIST" means the Korea Advanced Institute of Science and Technology;
- (d) "KAITECH" means the Korea Academy of Industrial Technology;
- (e) "KRISS" means the Korea Research Institute of Standards and Science;
- (f) "KORDI" means the Korea Ocean Research and Development Institute;
- (g) "SERI" means the Systems Engineering Research Institute;
- (h) "KWAIST" means the Kwangju Advanced Institute of Science and Technology;
- (i) "KIMM" means Korea Institute of Machinery and Metals;
- (j) "GERI" means the Genetic Engineering Research Institute;
- (k) "Korea Exchange Bank" means the bank established pursuant to the provisions of the Borrower's Banking Act passed by the Korean Assembly; and
- (l) "Special Account" means the account referred to in Section 2.02 (b) of this Agreement.

ARTICLE II

The Loan

Section 2.01. The Bank agrees to lend to the Borrower, on the terms and conditions set forth or referred to in the Loan Agreement, various currencies that shall have an aggregate value equivalent to the amount of NINETY MILLION dollars (\$90,000,000), being the sum of withdrawals of the proceeds of the Loan, with each withdrawal valued by the Bank as of the date of such withdrawal.

Section 2.02. (a) The amount of the Loan may be withdrawn from

the Loan Account in accordance with the provisions of Schedule 1 to this Agreement for expenditures made (or, if the Bank shall so agree, to be made) in respect of the reasonable cost of goods and services required for the Project described in Schedule 2 to this Agreement and to be financed out of the proceeds of the Loan.

(b) The Borrower shall, for the purposes of the Project, open and maintain in dollars a special deposit account in the Korea Exchange Bank on terms and conditions satisfactory to the Bank, including appropriate protection against set-off, seizure or attachment. Deposits into, and payments out of, the Special Account shall be made in accordance with the provisions of Schedule 5 to this Agreement.

Section 2.03. The Closing Date shall be September 30, 1998 or such later date as the Bank shall establish. The Bank shall promptly notify the Borrower of such later date.

Section 2.04. The Borrower shall pay to the Bank a commitment charge at the rate of three-fourths of one per cent ($\frac{3}{4}$ of 1%) per annum on the principal amount of the Loan not withdrawn from time to time.

Section 2.05. (a) The Borrower shall pay interest on the principal amount of the Loan withdrawn and outstanding from time to time, at a rate for each Interest Period equal to the Cost of Qualified Borrowings determined in respect of the preceding Semester, plus one-half of one percent ($\frac{1}{2}$ of 1%). On each of the dates specified in Section 2.06 of this Agreement, the Borrower shall pay interest accrued on the principal amount outstanding during the preceding Interest Period, calculated at the rate applicable during such Interest Period.

(b) As soon as practicable after the end of each Semester, the Bank shall notify the Borrower of the Cost of Qualified Borrowings determined in respect of such Semester.

(c) For the purposes of this Section:

- (i) "Interest Period" means a six-month period ending on the date immediately preceding each date specified in Section 2.06 of this Agreement, beginning with the Interest Period in which this Agreement is signed.
- (ii) "Cost of Qualified Borrowings" means the cost, as reasonably determined by the Bank and expressed as a percentage per annum, of the outstanding borrowings of the Bank drawn down after June 30, 1982, excluding such borrowings or portions thereof as the Bank has allocated to fund: (A) the Bank's investments; and (B) loans which may be made by the Bank after July 1, 1989 bearing interest rates determined otherwise than as provided in paragraph (a) of this Section.
- (iii) "Semester" means the first six months or the second six months of a calendar year.

(d) On such date as the Bank may specify by no less than six months' notice to the Borrower, paragraphs (a), (b) and (c) (iii) of this Section shall be amended to read as follows:

"(a) The Borrower shall pay interest on the principal amount of the Loan withdrawn and outstanding from time to time, at a rate for each Quarter equal to the Cost of Qualified Borrowings determined in respect of the preceding Quarter, plus one-half of one percent ($\frac{1}{2}$ of 1%). On each of the dates specified in Section 2.06 of this Agreement, the Borrower shall pay interest accrued on the principal amount outstanding during the preceding Interest Period, calculated at the rates

applicable during such Interest Period."

"(b) As soon as practicable after the end of each Quarter, the Bank shall notify the Borrower of the Cost of Qualified Borrowings determined in respect of such Quarter."

"(c) (iii) 'Quarter' means a three-month period commencing on January 1, April 1, July 1 or October 1 in a calendar year."

Section 2.06. Interest and other charges shall be payable semiannually on April 15 and October 15 in each year.

Section 2.07. The Borrower shall repay the principal amount of the Loan in accordance with the amortization schedule set forth in Schedule 3 to this Agreement.

ARTICLE III

Execution of the Project

Section 3.01. The Borrower declares its commitment to the objectives of the Project as set forth in Schedule 2 to this Agreement, and, to this end, shall carry out the Project through MOEN and the Research Participating Institutions, all with due diligence and efficiency and in conformity with appropriate environmental, technological, research, administrative and financial practices, and shall provide, promptly as needed, the funds, facilities, services and other resources required for the Project.

Section 3.02. Except as the Bank shall otherwise agree, procurement of the goods and consultants' services required for the Project and to be financed out of the proceeds of the Loan shall be governed by the provisions of Schedule 4 to this Agreement.

Section 3.03. The Borrower shall, or shall cause the Participating Institutions other than KRISS and KIMM, each, to carry out overseas training programs for selected research staff of MOEN and Participating Institutions other than KRISS and KIMM, satisfactory to the Bank.

ARTICLE IV

Financial Covenants

Section 4.01. (a) The Borrower shall maintain or cause to be maintained records and accounts adequate to reflect in accordance with sound accounting practices the operations, resources and expenditures in respect of the Project of the departments or agencies of the Borrower responsible for carrying out the Project or any part thereof.

(b) The Borrower shall:

- (i) have the records and accounts referred to in paragraph (a) of this Section including those for the Special Account for each fiscal year audited, in accordance with appropriate auditing principles consistently applied, by independent auditors acceptable to the Bank;
- (ii) furnish to the Bank as soon as available, but in any case not later than six months after the end of each such year, the report of such audit by said auditors, of such scope and in such detail as the Bank shall have reasonably requested; and
- (iii) furnish to the Bank such other information concerning said records and accounts and the audit thereof as the Bank shall from time to time

reasonably request.

(c) For all expenditures with respect to which withdrawals from the Loan Account were made on the basis of statements of expenditure, the Borrower shall:

- (i) maintain or cause to be maintained, in accordance with paragraph (a) of this Section, records and accounts reflecting such expenditures;
- (ii) retain, until at least one year after the Bank has received the audit report for the fiscal year in which the last withdrawal from the Loan Account or payment out of the Special Account was made, all records (contracts, orders, invoices, bills, receipts and other documents) evidencing such expenditures;
- (iii) enable the Bank's representatives to examine such records; and
- (iv) ensure that such records and accounts are included in the annual audit referred to in paragraph (b) of this Section and that the report of such audit contains a separate opinion by said auditors as to whether the statements of expenditure submitted during such fiscal year, together with the procedures and internal controls involved in their preparation, can be relied upon to support the related withdrawals.

Section 4.02. (a) The Borrower shall, or shall cause the Participating Institutions each to maintain records and accounts adequate to reflect in accordance with sound accounting practices the operations, resources and expenditures in respect of the Project or any part thereof.

(b) The Borrower shall, or shall cause the Participating Institutions each to:

- (i) have the records and accounts referred to in paragraph (a) of this Section including those for the Special Account for each fiscal year audited, in accordance with appropriate auditing principles consistently applied, by independent auditors acceptable to the Bank;
- (ii) furnish to the Bank as soon as available, but in any case not later than six months after the end of each such year, the report of such audit by said auditors, of such scope and in such detail as the Bank shall have reasonably requested; and
- (iii) furnish to the Bank such other information concerning said records and accounts and the audit thereof as the Bank shall from time to time reasonably request.

(c) For all expenditures with respect to which withdrawals from the Loan Account were made on the basis of statements of expenditure, the Borrower shall, or shall cause the Participating Institutions each to:

- (i) maintain or cause to be maintained, in accordance with paragraph (a) of this Section, records and accounts reflecting such expenditures;
- (ii) retain, until at least one year after the Bank has received the audit report for the fiscal year in which the last withdrawal from the Loan Account or payment out of the Special Account was made, all records (contracts, orders, invoices,

bills, receipts and other documents) evidencing such expenditures;

- (iii) enable the Bank's representatives to examine such records; and
- (iv) ensure that such records and accounts are included in the annual audit referred to in paragraph (b) of this Section and that the report of such audit contains a separate opinion by said auditors as to whether the statements of expenditure submitted during such fiscal year, together with the procedures and internal controls involved in their preparation, can be relied upon to support the related withdrawals.

ARTICLE V

Termination

Section 5.01. The date ninety (90) days after the date of this Agreement is hereby specified for the purposes of Section 12.04 of the General Conditions.

ARTICLE VI

Representative of the Borrower; Addresses

Section 6.01. The Ministry of Finance of the Borrower is designated as representative of the Borrower for the purposes of Section 11.03 of the General Conditions.

Section 6.02. The following addresses are specified for the purposes of Section 11.01 of the General Conditions:

For the Borrower:

Ministry of Finance
Kwachon
Republic of Korea

| | |
|-----------------------|---------|
| Cable address: | Telex: |
| MOF Kwachon, Korea | K-23243 |

For the Bank:

International Bank for
Reconstruction and Development
1818 H Street, N.W.
Washington, D.C. 20433
United States of America

| | |
|-------------------------------|--|
| Cable address: | Telex: |
| INTBAFRAD Washington, D.C. | 248423 (RCA) 82987 (FTCC) 64145 (WUI) or 197688 (TRT) |

IN WITNESS WHEREOF, the parties hereto, acting through their duly authorized representatives, have caused this Agreement to be signed in their respective names in the District of Columbia, United States of America, as of the day and year first above written.

REPUBLIC OF KOREA

By /s/ Chung Gi Kim
Authorized Representative

INTERNATIONAL BANK FOR
RECONSTRUCTION AND DEVELOPMENT

By /s/ Callisto E. Madavo
Acting Regional Vice President
East Asia and Pacific

SCHEDULE 1

Withdrawal of the Proceeds of the Loan

1. The table below sets forth the Categories of items to be financed out of the proceeds of the Loan, the allocation of the amounts of the Loan to each Category and the percentage of expenditures for items so to be financed in each Category:

| Category | Amount of the Loan Allocated (Expressed in Dollar Equivalent) | % of Expenditures to be Financed |
|--------------------------|---|--|
| (1) Equipment | 80,800,000 | 100% of foreign expenditures, 100% of local expenditures (ex-factory cost) and 65% of local expenditures for other items procured locally |
| (2) Overseas training | 5,100,000 | 100% of foreign expenditures |
| (3) Library materials | 2,400,000 | 100% of foreign expenditures |
| (4) Technical Assistance | 1,700,000 | 100% of foreign expenditures |
| TOTAL | <u>90,000,000</u> ===== | |

2. For the purposes of this Schedule:

(a) the term "foreign expenditures" means expenditures in the currency of any country other than that of the Borrower for goods or services supplied from the territory of any country other than that of the Borrower; and

(b) the term "local expenditures" means expenditures in the currency of the Borrower or for goods or services supplied from the territory of the Borrower.

3. Notwithstanding the provisions of paragraph 1 above, no withdrawals shall be made in respect of payments made for expenditures prior to the date of this Agreement.

4. The Bank may require withdrawals from the Loan Account to be made on the basis of statements of expenditure for such expenditures and under such terms and conditions as the Bank shall specify by notice to the Borrower.

SCHEDULE 2

Description of the Project

The objectives of the Project are to assist the Borrower to strengthen: (a) the capacity of the KAIST, KAITECH, KRISS, KORDI, SERI, KWAIST, KIMM and GERI to identify and adequately address environmental issues and undertake environmental research and development activities; and (b) MOEN's policy and planning role.

The Project consists of the following parts, subject to such modifications thereof as the Borrower and the Bank may agree upon from time to time to achieve such objectives:

PART A:

Provision of specialized research equipment and related consumable materials, operation and maintenance, and local transportation and installation for MOEN and the Participating Institutions.

PART B:

Provision of library materials for MOEN, KAIST, KORDI, KWAIST and GERI.

PART C:

Provision of relevant overseas training for selected research staff of MOEN, KAIST, KAITECH, KORDI, SERI, KWAIST and GERI.

PART D:

Provision of technical assistance for KAIST, KAITECH, KORDI, SERI, KWAIST and GERI.

PART E:

Construction of laboratories facilities for KAITECH, KRISS, KWAIST, KIMM and GERI.

* * *

The Project is expected to be completed by March 31, 1998.

SCHEDULE 3

Amortization Schedule

| Date Payment Due | Payment of Principal (expressed in dollars)* |
|--|---|
| On each April 15 and October 15 | |
| beginning April 15, 1999 through April 15, 2008 | 4,500,000 |
| and on October 15, 2008 | 4,500,000 |

* The figures in this column represent dollar equivalents

determined as of the respective dates of withdrawal. See General Conditions, Sections 3.04 and 4.03.

Premiums on Prepayment

Pursuant to Section 3.04 (b) of the General Conditions, the premium payable on the principal amount of any maturity of the Loan to be prepaid shall be the percentage specified for the applicable time of prepayment below:

| Time of Prepayment | Premium |
|---|---|
| | The interest rate (expressed as a percentage per annum) applicable to the Loan on the day of prepayment multiplied by: |
| Not more than three years before maturity | 0.20 |
| More than three years but not more than six years before maturity | 0.40 |
| More than six years but not more than 11 years before maturity | 0.73 |
| More than 11 years but not more than 13 years before maturity | 0.87 |
| More than 13 years before maturity | 1.00 |

SCHEDULE 4

Procurement and Consultants' Services

Section I. Procurement of Goods

Part A: International Competitive Bidding

1. Except as provided in Part C hereof, goods shall be procured under contracts awarded in accordance with procedures consistent with those set forth in Sections I and II of the "Guidelines for Procurement under IBRD Loans and IDA Credits" published by the Bank in May 1992 (the Guidelines).

2. For fixed-price contracts, the invitation to bid referred to in paragraph 2.13 of the Guidelines shall provide that, when contract award is delayed beyond the original bid validity period, the successful bidder's bid price will be increased for each week of delay by two predisclosed correction factors acceptable to the Bank, one to be applied to all foreign currency components and the other to the local currency component of the bid price. Such an increase shall not be taken into account in the bid evaluation.

3. In the procurement of goods in accordance with this Part A, the Borrower shall use the relevant standard bidding documents issued by the Bank, with such modifications thereto as the Bank shall have agreed to be necessary for the purposes of the Project. Where no relevant standard bidding documents have been issued by the Bank, the Borrower shall use bidding documents based on other internationally recognized standard forms agreed with the Bank.

Part B: Preference for Domestic Manufacturers

In the procurement of goods in accordance with the procedures described in Part A.1 hereof, goods manufactured in Korea may be granted a margin of preference in accordance with, and subject to, the provisions of paragraphs 2.55 and 2.56 of the Guidelines and paragraphs 1 through 4 of Appendix 2 thereto.

Part C: Other Procurement Procedures

1. Items or groups of items for equipment estimated to cost the equivalent of \$300,000 or less per contract, up to an aggregate amount equivalent to \$9,600,000, may be procured under contracts awarded on the basis of competitive bidding, advertised locally, in accordance with procedures satisfactory to the Bank.

2. Items or groups of items for equipment estimated to cost the equivalent of \$50,000 or less per contract, up to an aggregate amount equivalent to \$4,800,000 may be procured under contracts awarded on the basis of comparison of price quotations obtained from at least three suppliers from at least three different countries eligible under the Guidelines, in accordance with procedures acceptable to the Bank.

3. Contracts for library materials may be awarded after direct negotiations with suppliers, in accordance with procedures acceptable to the Bank.

Part D : Review by the Bank of Procurement Decisions

1. Review of invitations to bid and of proposed awards and final contracts:

(a) With respect to each contract for mainframe computers estimated to cost the equivalent of \$900,000 or more, the procedures set forth in paragraphs 2 and 4 of Appendix 1 to the Guidelines shall apply. Where payments for such contract are to be made out of the Special Account, such procedures shall be modified to ensure that the two conformed copies of the contract required to be furnished to the Bank pursuant to said paragraph 2 (d) shall be furnished to the Bank prior to the making of the first payment out of the Special Account in respect of such contract.

(b) With respect to each contract not governed by the preceding paragraph, the procedures set forth in paragraphs 3 and 4 of Appendix 1 to the Guidelines shall apply. Where payments for such contract are to be made out of the Special Account, said procedures shall be modified to ensure that the two conformed copies of the contract together with the other information required to be furnished to the Bank pursuant to said paragraph 3 shall be furnished to the Bank as part of the evidence to be furnished pursuant to paragraph 4 of Schedule 5 to this Agreement.

(c) The provisions of the preceding subparagraph (b) shall not apply to contracts on account of which withdrawals are to be made on the basis of statements of expenditure.

2. The figure of 15% is hereby specified for purposes of paragraph 4 of Appendix 1 to the Guidelines.

Section II. Employment of Consultants

In order to assist the Borrower in carrying out the Project, the Borrower shall employ, or shall cause KAIST, KAITECH, KORDI, SERI, KWAIST and GERI each to employ pursuant to a time-table satisfactory to the Bank, consultants whose qualifications, experience and terms and conditions of employment shall be satisfactory to the Bank. Such consultants shall be selected in accordance with principles and procedures satisfactory to the Bank on the basis of the "Guidelines for the Use of Consultants by World Bank Borrowers and by the World Bank as Executing Agency" published by the Bank in August 1981 (the Consultant Guidelines). For complex,

time-based assignments, the Borrower shall employ such consultants under contracts using the standard form of contract for consultants' services issued by the Bank, with such modifications as shall have been agreed by the Bank. Where no relevant standard contract documents have been issued by the Bank, the Borrower shall use other standard forms agreed with the Bank.

SCHEDULE 5

Special Account

1. For the purposes of this Schedule:

(a) the term "eligible Categories" means Categories (1) through (4) set forth in the table in paragraph 1 of Schedule 1 to this Agreement;

(b) the term "eligible expenditures" means expenditures in respect of the reasonable cost of goods and services required for the Project and to be financed out of the proceeds of the Loan allocated from time to time to the eligible Categories in accordance with the provisions of Schedule 1 to this Agreement; and

(c) the term "Authorized Allocation" means an amount equivalent to \$9,000,000 to be withdrawn from the Loan Account and deposited in the Special Account pursuant to paragraph 3 (a) of this Schedule.

2. Payments out of the Special Account shall be made exclusively for eligible expenditures in accordance with the provisions of this Schedule.

3. After the Bank has received evidence satisfactory to it that the Special Account has been duly opened, withdrawals of the Authorized Allocation and subsequent withdrawals to replenish the Special Account shall be made as follows:

(a) For withdrawals of the Authorized Allocation, the Borrower shall furnish to the Bank a request or requests for a deposit or deposits which do not exceed the aggregate amount of the Authorized Allocation. On the basis of such request or requests, the Bank shall, on behalf of the Borrower, withdraw from the Loan Account and deposit in the Special Account such amount or amounts as the Borrower shall have requested.

(b) (i) For replenishment of the Special Account, the Borrower shall furnish to the Bank requests for deposits into the Special Account at such intervals as the Bank shall specify.

(ii) Prior to or at the time of each such request, the Borrower shall furnish to the Bank the documents and other evidence required pursuant to paragraph 4 of this Schedule for the payment or payments in respect of which replenishment is requested. On the basis of each such request, the Bank shall, on behalf of the Borrower, withdraw from the Loan Account and deposit into the Special Account such amount as the Borrower shall have requested and as shall have been shown by said documents and other evidence to have been paid out of the Special Account for eligible expenditures.

All such deposits shall be withdrawn by the Bank from the Loan Account under the respective eligible Categories, and in the respective equivalent amounts, as shall have been justified by said documents and other evidence.

4. For each payment made by the Borrower out of the Special

Account, the Borrower shall, at such time as the Bank shall reasonably request, furnish to the Bank such documents and other evidence showing that such payment was made exclusively for eligible expenditures.

5. Notwithstanding the provisions of paragraph 3 of this Schedule, the Bank shall not be required to make further deposits into the Special Account:

(a) if, at any time, the Bank shall have determined that all further withdrawals should be made by the Borrower directly from the Loan Account in accordance with the provisions of Article V of the General Conditions and paragraph (a) of Section 2.02 of this Agreement; or

(b) once the total unwithdrawn amount of the Loan allocated to the eligible Categories, less the amount of any outstanding special commitment entered into by the Bank pursuant to Section 5.02 of the General Conditions with respect to the Project, shall equal the equivalent of twice the amount of the Authorized Allocation.

Thereafter, withdrawal from the Loan Account of the remaining unwithdrawn amount of the Loan allocated to the eligible Categories shall follow such procedures as the Bank shall specify by notice to the Borrower. Such further withdrawals shall be made only after and to the extent that the Bank shall have been satisfied that all such amounts remaining on deposit in the Special Account as of the date of such notice will be utilized in making payments for eligible expenditures.

6. (a) If the Bank shall have determined at any time that any payment out of the Special Account: (i) was made for an expenditure or in an amount not eligible pursuant to paragraph 2 of this Schedule; or (ii) was not justified by the evidence furnished to the Bank, the Borrower shall, promptly upon notice from the Bank: (A) provide such additional evidence as the Bank may request; or (B) deposit into the Special Account (or, if the Bank shall so request, refund to the Bank) an amount equal to the amount of such payment or the portion thereof not so eligible or justified. Unless the Bank shall otherwise agree, no further deposit by the Bank into the Special Account shall be made until the Borrower has provided such evidence or made such deposit or refund, as the case may be.

(b) If the Bank shall have determined at any time that any amount outstanding in the Special Account will not be required to cover further payments for eligible expenditures, the Borrower shall, promptly upon notice from the Bank, refund to the Bank such outstanding amount.

(c) The Borrower may, upon notice to the Bank, refund to the Bank all or any portion of the funds on deposit in the Special Account.

(d) Refunds to the Bank made pursuant to paragraphs 6 (a), (b) and (c) of this Schedule shall be credited to the Loan Account for subsequent withdrawal or for cancellation in accordance with the relevant provisions of this Agreement, including the General Conditions.

